

**ABSTRACT OF THE DISCLOSURE**

A method for conveying, a receiver for receiving and a signal that contains a differential phase modulated multi-band high-speed data stream are provided. A preferred embodiment is directed to a multi-band UWB signal where each band spans about 500MHz to 1 GHz. Within each such band, a flexible modulation scheme of the present invention is employed that comprises two-pulse duplets having a difference set to  $\Pi/2$  or  $90^\circ$ . This modulation scheme allows adaptation of the data rate to the sub-band channel conditions. Within each band, time, amplitude and phase modulations are employed. In addition, a pseudorandom frequency sequence is employed to provide sufficient reduction of multi-user interference.